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EXAMINER

VIGUSIIN, JOHN B

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 07/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No

10/066 122

Applicant(s)

INV OFER

Examiner

Art Unit

John B. Vigusna

2827

The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 9-14, 16 and 18 is/are rejected.
- 7) ☒ Claim(s) 6, 8, 15 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other _____

DETAILED ACTION

Abstract

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet **within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited.** The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because it **exceeds 150 words.**

Correction is required. See MPEP § 608.01(b).

Rejections Based On Prior Art

3. The following references were relied upon for the rejections hereinbelow:

Guenther (US 2002/0181215 A1)

Sample et al. (US 5,887,158)

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 10 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Guenther.

As to Claims 1 and 10, Guenther discloses: at least one line (i.e., interconnect) card 404 (p.4: [0041]; at least one switching (i.e., logic) card 402 (p.3: [0038]); a midplane 200 coupled to the at least one line card 404 and the at least one switching card 402 wherein the at least one line card 404 and the at least one switching card 402 are perpendicular to each other (Fig. 4A).

As to Claims 2 and 11, Guenther discloses that the at least one line card 404 and the at least one switching card 402 are perpendicular to and on opposite sides of midplane 200.

6. Claims 1, 2, 10 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Sample et al.

As to Claims 1 and 10, Sample et al. discloses: at least one line card 12; at least one switching card 14; a midplane 24 coupled to the at least one line card 12 and the at least one switching card 14 wherein the at least one line card 12 and the at least one switching card 14 are perpendicular to each other (Figs. 2 and 4A; col.5: 36-45).

As to Claims 2 and 11, Sample et al. discloses that the at least one line card 12 and the at least one switching card 14 are perpendicular to and on opposite sides of midplane 24 (Figs. 2, 4A, 5A and 6A; col.5: 36-45).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3-5, 9, 12-14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guenther.

As to Claims 3 and 12:

I. Guenther discloses a first midplane connector 602B (Fig. 6B) corresponding to contact regions 302 (p.3: last four lines of [0037]; p.5: [0052]) but does not disclose that the at least one line card 404 comprises an ingress port and an egress port, and first midplane connector 602B is coupled to the ingress port and egress port.

II. Since line cards 404 must send and receive signals to communicate with other cards in the system, then an ingress port an egress port are inherent in the structure of the line card in order to effect said communication with the other cards in the system, and it therefore would have been obvious to one of ordinary skill in the art at the time the invention was made to connect contacts 302 of first midplane connector 602B to an ingress port and an egress port of a line card 404 in order to channel the input and output signals of the line (interconnection) card 404 to and from switching (logic) cards 402, as taught by Guenther (p.3: last three lines of [0033]; p.4: lines 4-11 of [0041]).

As to Claims 4 and 13, Guentchner discloses the at least one switching card 402 comprises a switch element (i.e., a logic chip; p.3: [0038]), a second midplane connector 602B (Fig. 6B; p.5: [0052]) coupled to the switch element (p.3: lines 10-14 of [0037]).

As to Claims 5 and 14, Guentchner discloses the first midplane connector comprises a plurality of midplane subconnectors 602B (i.e., three subconnectors 602B, each corresponding to the four contact regions 302 (Figs. 4A and 6B; p.3: last four lines of [0037])).

As to Claims 9 and 18, Guentchner discloses each of the first and second midplane connectors 602B (Fig. 6B) comprises a plurality of midplane connectors corresponding to the contact regions 202 and 302 (Figs. 2, 3 and 4A), respectively (p.3: [0037]; p.5: [0052]).

9. Claims 3, 4, 7, 12, 13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sample et al.

As to Claims 3 and 12:

I. Sample et al. discloses a first midplane connector 40a (Fig. 4A) coupled to line card 14 (col.6: 34-41) but does not disclose that the at least one line card 14 comprises an ingress port and an egress port, and first midplane connector 40A is coupled to the ingress port and egress port.

II. Since line cards 14 must send and receive signals to communicate with other cards in the system, i.e., the switching cards 12 (Fig. 1), then an ingress port an egress port are inherent in the structure of the line card 14 in order to effect said

communication with the switching cards 12, and it therefore would have been obvious to one of ordinary skill in the art at the time the invention was made to couple first midplane connector 40a to an ingress port and an egress port of a line card 14 in order to channel the input and output signals of the line card 14 to and from switching cards 12 (Fig. 1).

As to Claims 4 and 13, Sample et al. discloses that the at least one switching card 14 comprises a switching element 20 (Fig. 1) and a second midplane connector 42a coupled to the switch element 20 (col.6: 34-41).

As to Claims 7 and 16, Sample et al. discloses that first midplane connector 40a comprises a single midplane connector (Fig. 4A).

Allowable Subject Matter

10. Claims 6, 8, 15 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

As to Claims 6 and 15 (which depend from Claims 5 and 14, respectively), patentability resides in the combined limitation wherein *the first midplane connector comprises a plurality of midplane subconnectors* (Claims 5 and 14) and *the second midplane connector comprises a single midplane connector*, in combination with the other limitations of Claims 6 and 15, respectively.

As to Claims 8 and 17 (which depend from Claims 7 and 16, respectively), patentability resides in **the combined limitation** wherein *the first midplane connector comprises a single midplane connector* (Claims 7 and 16) **and** *the second midplane connector comprises a plurality of midplane subconnectors*, in combination with the other limitations of Claims 8 and 17, respectively.

12. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) The following references disclose various types of cards mounted perpendicular to and on opposite sides of a midplane:

Krishnamurthi et al. (US 6,538,899 B1): Fig. 2A.

Kwong et al. (US 6,528,737 B1): Fig. 1.

Ishibashi et al. (US 6,163,464): Fig. 1.

Fukuda (US 5,870,528): Figs. 3 and 4.

Wicklund et al. (US 5,296,748): Fig. 4.

Krajewski et al. (US 5,167,511): Fig. 2.

Petit et al. (US 4,703,394): Figs. 1 and 6.

Hughes (US 4,472,765): Figs. 1, 2 and 3.

b) Marconi et al. (US 5,991,163) discloses logic boards mounted to a backplane wherein the logic boards D are either "switch fabric" boards or CPU boards (Fig. 1B; col.2: 63-col.3: 8; col.4: 56-col.5: 14).


c) Kwong et al. (US 6,462,957 B1) discloses boards 401 orthogonally connected to boards 402 without using an interconnecting midplane (Fig. 6).

d) Balakrishnan (US 5,122,691) a backplane comprising cards 90 through 107, and cards 110 through 117 are connected to the backplane by connectors 131-through 138 (Fig. 5; col.8: 60-67).

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John B. Vigushin whose telephone number is 703-308-1205. The examiner can normally be reached on 8:30AM-5:00PM Mo-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7382 for regular communications and 703-308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


John B. Vigushin
Examiner
Art Unit 2827

jbv
June 24, 2003